**King Saud University**

**College of Computer and Information Sciences**

**Department of Information Systems**

**IS 463–Introduction to Data Mining**

**Fall 1435-1436**

**Course Instructor:** Prof. Alaaeldin Hafez

**Textbook(s) and/or Other Required Materials:**

#### Primary: Pang-Ning Tan, Michael Steinbach, and Vipin Kumar, Introduction to Data Mining, 2nd Edition (Addison-Wesley), 2014.

**Supplementary**: Jiawei Han, Micheline Kamber, and Jian Pei, Data Mining: Concepts and Techniques, Third Edition (The Morgan Kaufmann Series in Data Management Systems), 2011

**Course Description (catalog):**

The aim of the course is to introduce the concepts and methods in Data Mining field. The course is intended to provide the students with strong background towards the application of Data Mining techniques in real world problems and performing research and development for recent Data Mining techniques. The course introduces the algorithms and methods Association Rules, Classification, Clustering, Sequential Pattern, Time Series Analysis and some other new trends in Data Mining field.

**Prerequisites:** IS 230 (Introduction to Database Systems),

 IS 362 (Mathematical Modeling for IS)

**Co-requisite:** None

**Course Type:** Elective

**Course Learning Outcomes:** After completing this course, the students will be able to:

* Understand knowledge discovery process
* Understand different data mining categories
* Understand basic techniques of data mining
* Understand advanced techniques of data mining
* Apply data mining techniques on different Data Mining applications
* Work with new trends in data mining

**Student Outcomes Covered by Course**

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| **Outcome** | **Student Outcome Description** | **Coverage** |
| (a) | An ability to apply knowledge of computing and mathematics appropriate to the discipline |  |
| (b) | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution | **√** |
| (c) | An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs |  |
| (d) | An ability to function effectively on teams to accomplish a common goal | **√** |
| (e) | An understanding of professional, ethical, legal, security and social issues and responsibilities |  |
| (f) | An ability to communicate effectively with a range of audiences |  |
| (g) | An ability to analyze the local and global impact of computing on individuals, organizations, and society |  |
| (h) | Recognition of the need for and an ability to engage in continuing professional development |  |
| (i) | An ability to use current techniques, skills, and tools necessary for computing practice. | **√** |
| (j) | An understanding of processes that support the delivery and management of information systems within a specific application environment. |  |

**Major Topics covered and weekly course schedule:**

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| * Introduction to Data Mining and its application
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| * Data Mining Process
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| * Data Mining Techniques
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| * Advanced Algorithms in Data Mining
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| * Data Mining applications
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| * New Trends in Data Mining
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**Grades Distribution:**

20% Midterm Exam.

20% Project

20% Quizzes and Assignments

40% Final Exam.

**Important Dates:**

* Midterm Date
* Project Submission Date
* **No late** homework will be accepted.
* The quizzes may be pop or announced, and may be given at anytime during class-time
* Students are encouraged to discuss homework problems but **not copy**.
* Copying project or home assignments results in zero grading.
* **All exams are closed book.**
* **The final exam will be comprehensive.**